

**What is claimed is:**

1. A device for heating at least one hydrogen storage canister to discharge hydrogen, comprising:

a canister containing chamber with an inner space for accommodating the hydrogen storage canister therein;

a catalyst bed, arranged in the inner space of the canister containing chamber, having a heating gas inflow end and a heating gas outflow end;

a blowing device, for providing an air flow into an air flow leading pipe;

a nozzle section, which has an inflow end in communication with the air flow leading pipe for conveying the air flow into the nozzle section and an outflow end in communication with a heating gas drawing pipe connecting to the heating gas inflow end of the catalyst bed;

a heating fuel storage tank for supplying a heating fuel via a heating fuel supplying pipeline to the nozzle section;

wherein when the air flow flows through the nozzle section, the heating fuel in the heating fuel supplying pipeline is sucked into the nozzle section to mix with the air flow forming an atomized heating gas, the atomized heating gas being further supplied into the catalyst bed via the heating gas drawing pipe to generate a hot gas, so that the hydrogen storage canister contained in the canister containing chamber is heated to discharge hydrogen into a hydrogen supplying pipeline.

2. The device as claimed in Claim 1, wherein the heating fuel is methanol.
3. The device as claimed in Claim 1, wherein the heating fuel supplying pipeline is further equipped with a pre-heating device for pre-heating the heating fuel

in the fuel supplying pipeline before supplying to the nozzle section.

4. The device as claimed in Claim 1, wherein the canister containing chamber is further provided with a coiled pipe around an inner surface of the canister containing chamber, the coiled pipe being connected between the heating fuel supplying pipeline and the nozzle section for conveying the heating fuel from the heating fuel supplying pipeline to the nozzle section, when flowing through the coiled pipe, the heating fuel being heated by the hot gas generated in the catalyst bed.
5. The device as claimed in Claim 1, wherein the canister containing chamber is further equipped with a heat insulating layer surrounding an outer surface of the canister containing chamber.
6. The device as claimed in Claim 1, wherein the hydrogen supplying pipeline comprises a pressure regulating valve for regulating a pressure of the discharged hydrogen.
7. The device as claimed in Claim 1, wherein the hydrogen supplying pipeline comprises a flow meter for measuring a flow rate of the discharged hydrogen.
8. The device as claimed in Claim 1, wherein in the canister containing chamber comprises at least one through hole serving as a hot gas guiding outlet for the hot gas.
9. The device as claimed in Claim 8, further comprising a hot gas recirculating device connected to the through hole of the canister containing chamber via a hot gas recirculating pipeline for reuse of the hot gas.
10. A method for heating at least one hydrogen storage canister accommodated in a canister containing chamber to discharge hydrogen of the hydrogen storage canister, comprising:
  - (a) supplying an air flow to a nozzle section via an air flow leading pipe;

- (b) supplying a heating fuel to a heating fuel supplying pipeline and then conveying the heating fuel from the heating fuel supplying pipeline to the nozzle section;
- (c) sucking the heating fuel from the heating fuel supplying pipeline into the nozzle section to form an atomized heating gas when the air flow flows through the nozzle section;
- (d) conveying the atomized heating gas to the catalyst bed which catalyzes the heating gas to combust and generate a hot gas; and
- (e) conveying the hot gas into the canister containing chamber to heat up the hydrogen storage canister.

11. The method as claimed in Claim 10, wherein the heating fuel is methanol.
12. The method as claimed in Claim 10, wherein step (b) further comprises a step of pre-heating the heating fuel in the heating fuel supplying pipeline.
13. The method as claimed in Claim 10, wherein in step (b), the heating fuel supplied to the heating fuel supplying pipeline is further conveyed to a coiled pipe around an inner surface of the canister containing chamber before conveying to the heating fuel supplying conduit, such that the heating fuel is heated by the hot gas generated by the catalyst bed when flowing through the coiled pipe.
14. The method as claimed in Claim 10, wherein step (d) further comprises a step of recirculation of the hot gas generated by the catalyst bed.
15. The method as claimed in Claim 10, wherein step (d) further comprises a step of processing the hot gas to remove incompletely burnt substances from the catalyst bed.